CLAIMS

What is claimed is:

1. A method of preparing a compressed audio, video, or multimedia bitstream to facilitate real time streaming of the bitstream, the method comprising:

parsing the bitstream to identify network packet boundaries in the bitstream; and

annotating the bitstream with network packet information specifying the network packet boundaries such that a streaming apparatus can use the network packet information to rapidly divide the bitstream into network packets for real-time streaming.

2. The method of claim 1 wherein the network packet information includes an index specifying a byte position in the bitstream, the byte position identifies the first bitstream byte to be included in a network packet.

3. The method of claim 2 wherein the index is included in a group of pictures header and the index includes starting and ending byte locations for MPEG packets included in a group of pictures associated with the group of pictures header.

4. The method of claim 2 further including separating the bitstream into an elementary audio stream and a elementary video stream.

5. The method of claim 4 further including inserting the index in one of the elementary audio stream and the elementary video stream.

6. The method of claim 5 wherein the index is inserted into the elementary video stream.

7. The method of claim 1 wherein the network packet information includes a length specifying how many bits from the bitstream are to be included in a network packet.

8. The method of claim 1 wherein the network packet information includes a type designation specifying the type of data from the bitstream that is to be included in a network packet.

9. The method of claim 1 wherein the network packet information includes an index specifying a byte position in the bitstream, the byte position identifies the first bitstream byte to be included in a network packet, a length specifying how many bytes from the bitstream are to be included in a network packet and a type designation specifying the type of data from the bitstream that is to be included in a network packet.

10. The method of claim 1 wherein the bitstream includes both audio and video data and wherein the network packet information specifies network packet boundaries for packets containing audio data and for packets containing video data.

A1 cont'd

11. The method of claim 10 further comprising combining an annotated video bitstream with an annotated audio bitstream to create a modified system stream.

12. The method of claim 11 wherein the modified system stream is an MPEG bitstream.

13. The method of claim 12 wherein the beginning of a network boundary is located according to start code included in the MPEG bitstream.

14. The method of claim 13 wherein the start code is one of a sequence header, a group of pictures header and a picture header.

15. The method of claim 1 wherein the network packet information includes network packet header information.

16. The method of claim 1 wherein the network packet boundaries are variably sized according to a network protocol.

17. The method of claim 1 wherein the network packet boundaries are a constant sized.

18. The method of claim 1 further including adding a flag to the bitstream which signals that the bitstream is annotated.

19. A computer program product comprising a machine readable medium on which is provided instructions for preparing a compressed audio, video, or multimedia bitstream to facilitate real-time streaming of the bitstream, the instructions comprising:

parsing the bitstream to identify network packet boundaries in the bitstream; and

annotating the bitstream with network packet information specifying the network packet boundaries such that a streaming apparatus can use the network packet information and rapidly divide the bitstream into network packets for real-time streaming.

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20. The computer program product of claim 19 wherein the network packet information includes an index specifying a byte position in the bitstream, the byte position identifies the first bitstream byte to be included in a network packet, a length specifying how many bytes from the bitstream are to be included in a network packet and a type designation specifying the type of data from the bitstream that is to be included in a network packet.

21. The computer program product of claim 20 wherein the bitstream is an MPEG bitstream.

22. The computer program product of claim 21 wherein the index is appended onto a group of pictures header.

23. The computer program product of claim 19 wherein the bitstream includes both audio and video data and wherein the network packet information specifies network packet boundaries for packets containing audio data and for packets containing video data.

24. A method of performing real-time streaming of a bitstream, the method comprising:

parsing the bitstream to identify network packet boundaries in the bitstream;

annotating the bitstream with network packet information specifying the network packet boundaries;

storing the annotated bitstream; and

block streaming the bitstream in real-time using the network packet information to divide the bitstream into network packets.

25. The method of claim 24 further including block copying data from the annotated bitstream into an RTP bitstream.

26. The method of claim 24 further including demultiplexing the bitstream.

27. The method of claim 24 wherein the bitstream includes an elementary video stream and an elementary audio stream.

A1 cont'd

28. The method of claim 27 wherein the bitstream is annotated with network packet information such that an integer number of audio frames in the elementary audio stream are included in each of the network packet boundaries.

29. A system for transmitting a compressed audio, video, or multimedia bitstream, the system comprising:

a demultiplexer;

a segmentor capable of annotating the bitstream with network packet information specifying network packet boundaries;

a multiplexer; and

a streaming apparatus that uses the network packet information to divide the bitstream into network packets for real-time streaming.

30. The system of claim 29 wherein the segmentor produces one of an annotated video stream or an annotated audio stream containing the network packet information.

31. The system of claim 29 wherein the demultiplexer produces an audio stream and a video stream.

32. The system of claim 31 further including one or more buffers that store the audio stream and the video stream.

33. The system of claim 31 further including a second demultiplexer.

34. The system of claim 29 wherein the multiplexer produces a modified bitstream including the network packet information specifying network packet boundaries.

35. The system of claim 34 further including a memory that stores the modified bitstream.

36. The system of claim 29 wherein the streaming apparatus uses a single block copy for a network packet for real-time streaming.

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37. A system for transmitting a compressed audio, video, or multimedia bitstream, the system comprising:

a demultiplexer for separating a system stream into an audio stream and a video stream;

a segmentor for annotating the video stream with network packet information specifying network packet boundaries;

a multiplexer for combining the audio and video streams into a modified system stream; and

a streaming apparatus for dividing the modified system bitstream into network packets for real-time streaming using the network packet information.

38. A system for transmitting a compressed audio, video, or multimedia bitstream, the system comprising:

means for separating a system stream into an audio stream and a video stream;

means for annotating the video stream with network packet information specifying network packet boundaries;

means for combining the audio and video streams into a modified system stream; and

means for dividing the modified system bitstream into network packets for real-time streaming using the network packet information.